northumbria UNIVERSITY
great learning great experience great future

Cataract Through The Ages

Stephen Craig
Senior Lecturer – Adult Nursing
Northumbria University
Newcastle – Upon – Tyne
England

APAOSydney2011
SYDNEY AUSTRALIA
20-24 MARCH 2011

Asia Pacific Academy of Ophthalmology Congress

Hosted by
RANZCO

A Walk Through History

- Sanskrit Manuscripts, 100AD describe ‘couching’. It is suggested that ancient Indian cultures practised some form of Cataract operation before this, but definitive history is lacking.
- Galen (129 – 199/217D) Described Cataracts as ‘Hypochyma’, resultant from malignant humours flowing down from the brain.

A Walk Through History

northumbria UNIVERSITY
great learning great experience great future

- Glaucoma described as a disease of the crystalline lens, and the ‘hypochyma’ an outpouring of fluid that then gels and lies between the Iris and the crystalline body

- Hypochyma (Greek), translated to Suffusio (Roman) and lastly to Gutta Opacta or Cataracta (Latin)

A Walk Through History

northumbria UNIVERSITY
great learning great experience great future

- The Romans believed that couching came from the animal kingdom, from a fairytale about goats and thorns.

- (Claudius Aelianus c.222AD)

- Aulus Cornelius Celsus (25BC-50AD), A Roman physician, described ‘Cataract couching’.

A Walk Through History

- 14th. Century to 18th. Century, Couching was the only ‘Cataract Operation’ available.

- This was usually carried out by Barbers, as with dentistry and bone setting, cataract operations were considered to be too lowly for a surgeon.

Cataract Surgery

Couching

A Walk Through History

Johannes Kepler (1571-1630), identified in 1610, that the Retina was the organ of sight, and that the lens was a refracting body.

Pierre Brisseau (1631-1717) identified the lens as the site of Cataract. This was corroborated by Antoine Maître-Jan (1650-1725) in 1707.

Jacques Davile (1696-1762), performed the first Cataract Extraction in 1747. (Semi-Circular Corneal Incision).

A Walk Through History

Friedrich Jaeger (1784-1871) advocated the 12 o'clock limbal incision, allowing the upper lid to act as a bandage.

Eduard Jaeger (1818-1884) championed extraction over couching.

Henry Willard Williams (1821-1895) uses anaesthesia routinely for cataract operations. He also uses Corneal Sutures for the first time in 1865.

Carl Koller (1857 – 1944) describes the effects of Cocaine on the eye in 1884. 'Nicknamed Coca – Koller'

A Walk Through History

Hermann Knapp (1832-1911) championed the Intracapsular method.

Ignacio Barraquer (1884 – 1965) in 1917 constructed the 'Eryophake', a device for sucking out the lens.

Harold Ridley (1906 - 2001) performs the first Intra-Ocular Lens implant in St Thomas's Hospital, London, November 29th 1949.

Tadeusaz Krwawicz (1910 – 1988) pioneered 'Cryoextraction' in 1961.

Charles D. Kelman (1930 – 2004) devises Phaco-Emulsification in 1967. The first procedure takes over 4 hours, inclusive of 61 minutes of ultrasound.

Sir Harold Ridley

- Sir Harold Ridley (1906 – 2001)

Intra Ocular Lenses

northumbria UNIVERSITY
great learning great experience great future

First IOL, by Harold Ridley, London 1949.

Made Perspex CQ, Made by Rayners of Brighton & Hove

A 1994 American Survey found this substance to still be the manufacturers choice of Plastic.

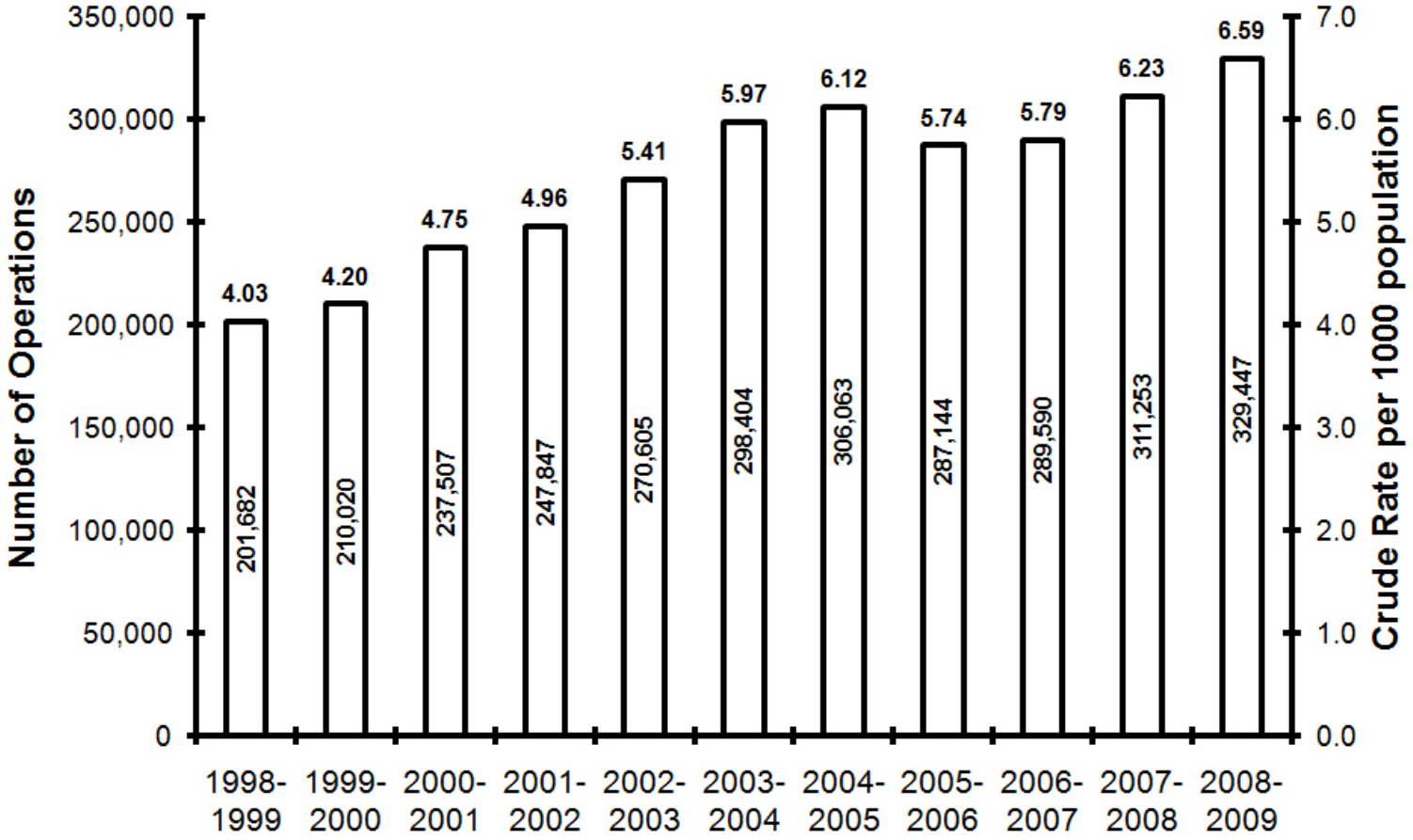
The Introduction Capsulorhexis, increased the effects of Centration.

Cataract

- Incidence.
- It was estimated that 225,000 new cases of visually impairing cataract should be expected each year, the 5-year cumulative incidence being estimated at 1.1 million new cases among the population aged 65 years and older.

- Minassian DC, Reidy A, Desai P, Farrow S, Vafidis G, Minassian A. The deficit in cataract surgery in England and Wales and the escalating problem of visual impairment: epidemiological modelling of the population dynamics of cataract. Br J Ophthalmol 2000;84:4-8.

Procedures



HESonline. Main procedures and interventions: 2000-2008. http://www.hesonline.nhs.uk/Ease/servlet/ContentServer?siteID=1937&categoryID=215 2009.

Anaesthesia

There have been dramatic changes in anaesthetic practice for ophthalmic surgery over the past twenty years in the UK.

The use of local anaesthesia (LA) has risen from around 46% in 1991 to 75% - 86% in 1996-7 and has stabilized at 96% in 2003-6

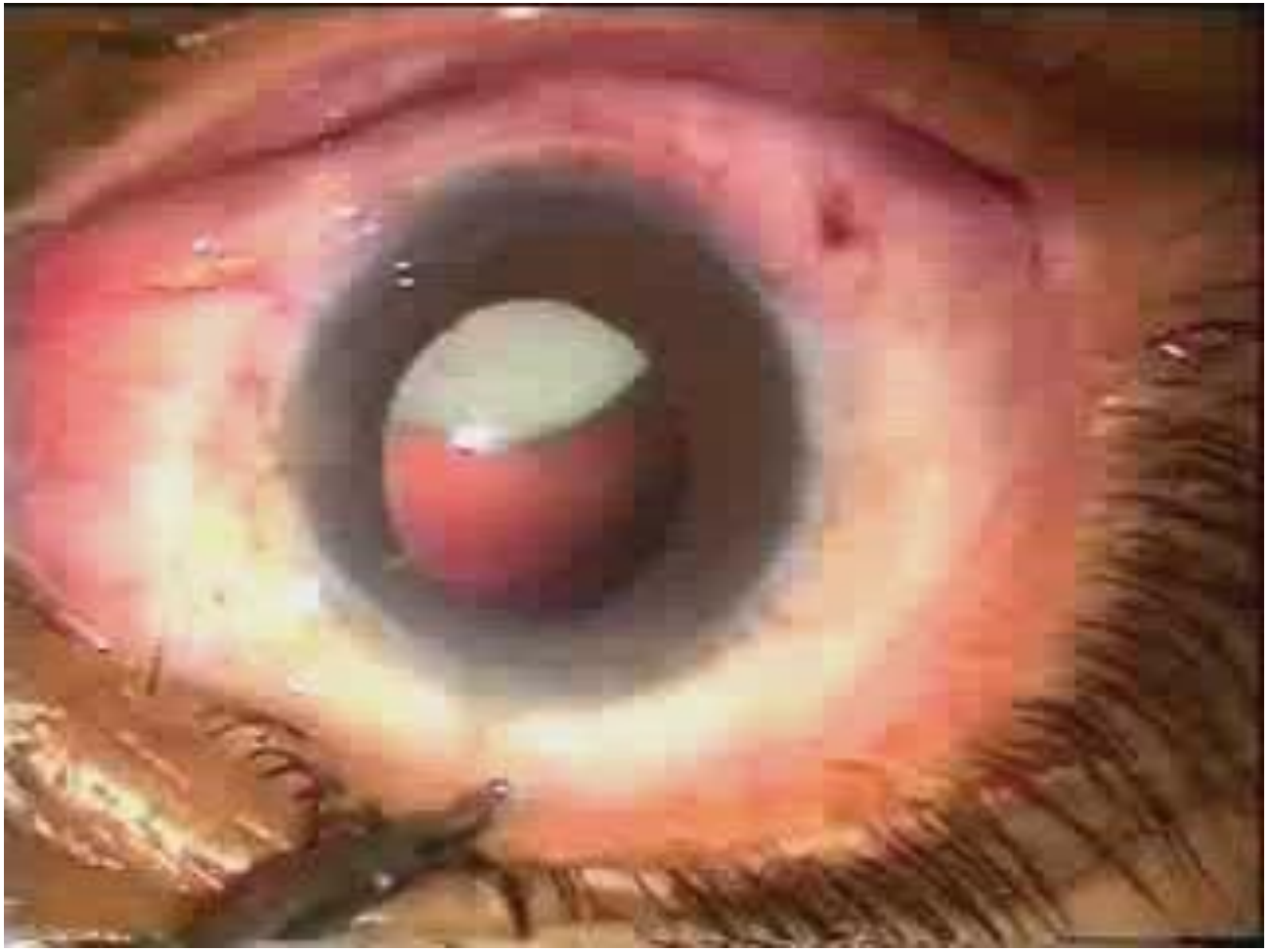
The use of sedation with LA has fallen from 45% in 1991 to around 6% in 1996, 3.9% in 2003 and 1.4% in 2006.

Eke T, Thomson JR. Serious complications of local anaesthesia for cataract surgery: a 1 year national survey in the United Kingdom. Br J Ophthalmol 2007 Apr;91(4):470-5.

RCOpth. Cataract Guidelines (2010)

	Pre-Operative	Intra-Operative	Post-Operative
Incision	Wrong Site	Perforation	Wound Leak
		Descemets Detachment	Wound Dehiscence
		Thermal Burns	
Cornea	Missed Endothelial Pathology		Astigmatism
			Oedema / Bullous Keratopathy
Anterior Chamber		Haemorrhage	Pressure Rise
			Endophthalmitis
Capsule		Retinal Tears in Anterior Capsule	Capsule Block Syndrome
		'Rhexsis too Small	Late Tear with IOL Posterior Dislocation
		Hydodissection Rupture	PCLO
Zonules	Missed Phacodonesis	Subluxation	IOL / Bag Decentration
	Missed Lens Subluxation	Dislocation	Sunset Syndrome
Nucleus		Trapped Nucleus (Non Rotating)	
		Subluxation	
		Dropped Nucleus	
Iris		Prolapse	
		Phaco Damage	
IOL	Wrong Power Calculation	Damage During Insertion	Opacification
		Incorrect Positioning	Inflammation
Retina / Vitreous		Incarceration in the Section	Cystoid Macular Oedema (CMO)
		Retinal Tear	Retinal Detachment
		Choriodal Haemmorhage	

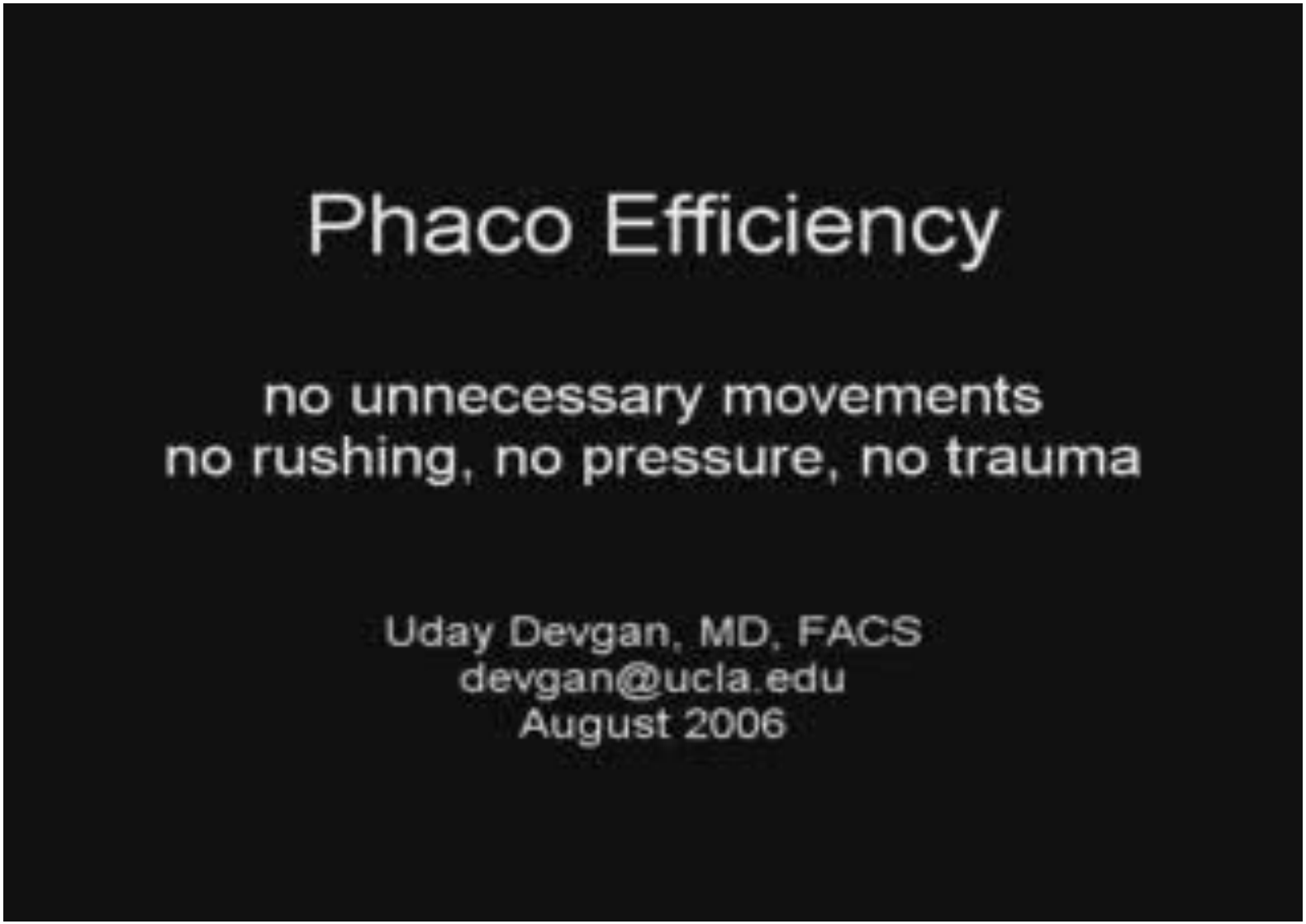
Intra-Capsular Cataract Extraction



Extra-Capsular Cataract Extraction

northumbria UNIVERSITY
great learning great experience great future

Phacoemulsification



Intra-Operative Complications

Posterior Capsule Tear (2% - 5%)

Vitreous Loss (1.1%)

Expulsive Choroidal Haemorrhage (0.04% - 0.20%)

Only 45% of affected eyes will achieve 6/60 or better on recovery.

Dropped Nucleus (0.3% - 1.1%)

Royal College of Ophthalmologists – Cataract Surgery Guidelines 2010

Dropped Nucleus

Early Post Operative Complications

Increased IOP (5.3%)

Iris Prolapse

Endophthalmitis (0.072% - 0.3%)

Incidence decreased with the increase in Day Case Surgery.

Royal College of Ophthalmologists – Cataract Surgery Guidelines 2010

Long Term Post Operative Complications

northumbria UNIVERSITY
great learning great experience great future

Cystoid Macular Oedema (1% - 12%)

Increased IOP (2.3%)

Posterior Capsule Opacity (15% - 50%)

Retinal Detachment (0.1% - 0.8%)

Decentration Of Lens.

Royal College of Ophthalmologists – Cataract Surgery Guidelines 2010